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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,845	10/22/2003	Susumu Fukushima	43890-637	4239

7590 06/27/2005
MCDERMOTT, WILL & EMERY
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Washington, DC 20005-3096

EXAMINER

CAO, HUEDUNG X

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/689,845	Applicant(s) FUKUSHIMA ET AL.	
	Examiner Huedung X. Cao	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
 7) ☐ Claim(s) 5 and 9-32 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/22/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over KAWAHATA (US 6,177,908 B1).

As per claim 1, Kawahata teaches the claimed "an antenna" (Kawahata, figure 1, antenna 40) comprising a main body having a flat part (Kawahata, figure 1, base member 41), an antenna electrode provided on the flat part of this body (Kawahata, figure 1, radiating electrode 43), a signal electrode electrically connected to this antenna electrode (Kawahata, figure 1, power electro 45), and a grounding electrode provided in a way to face said antenna electrode of the main body (Kawahata, figure 1, grounding electrode 42), said antenna electrode being different in length at the X axis from the Y axis orthogonal or about orthogonal to it which Kawahata does not explicitly disclose. However, Kawahata's radiating electrode 43 with the rectangular shape suggest Applicant's antenna electrode being different in length at the X axis from the Y axis orthogonal (Kawahata, figure 1, radiating electrode 43, the length in x direction is different from the length in y direction according to x y z coordinate). It would have

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been obvious to one of ordinary skill in the art at the time the invention was made to use different shape or length for the radiating electrode for different designs of the antenna.

Claim 2 adds into claim 1, wherein the main body is flat (Kawahata, figure 1, base member 41).

Claim 3 adds into claim 1, wherein the signal electrode is formed on the main body at about 45 degree from the intersection of the X axis and Y axis (Kawahata, figure 1, power electrode 45).

Claim 4 adds into claim 1, wherein the signal electrode is provided in a state not in contact with the antenna electrode, Kawahata, figure 1, radiating electrode 43a is not in contact with power electrode 45 .

Claim 7 is similar in scope to claim 1; therefore, it is rejected for the same reason.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over KAWAHATA et al. (US 6,177,908 B1) in view of KAWAHATA (US 5,952,970).

As per claim 6, an electronic equipment at least one of the transmitting circuit and the receiving circuit of which is electrically connected to the antenna which Kawahata (US 6177908 B1) does not teach. However, Kawahata (US 5,952,970) teaches the antenna element is connected to the transmitting and receiving circuit is widely use in the art (Kawahata, column 8, lines 2-10). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Kawahata et al. the antenna element is connected to the transmitting and receiving circuit, as taught by Kawahata in order to maximize the efficiency of the antenna.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over KAWAHATA et al. (US 6,177,908 B1) in view of TRAN (US 6,184,833 B1).

As per claim 6, wherein the electric length of the antenna on the X axis and Y axis are set for about half wave lengths which Kawahata does not explicitly disclose. However, Tran teaches the electric length of the antenna on the X axis and Y axis are set for about half wave lengths is widely use in the art (Tran, column 8, lines 56-59). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Kawahata et al. the electric length of the antenna on the X axis and Y axis are set for about half wave lengths, as taught by Tran in order to provide the different designs of the antenna.

Allowable Subject Matter

5. Claims 5, 9-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Prior Art fails to teach, the electrical connecting part between the signal electrode and the antenna electrode is realized in concave and convex shape; the clearance between the antenna electrode and the grounding electrode is variable, and this clearance between the antenna electrode and the grounding electrode in the area around the central part (intersection of X axis and Y axis) of the antenna electrode is larger than that in the peripheral area of the antenna electrode; the main body between

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the antenna electrode and the grounding electrode is composed of either a dielectric material, a magnetic material or a mixture of dielectric material and magnetic material, the value obtained by dividing the relative permeability by the relative permittivity of the main body varies at an optional point in the area from the peripheral part of the antenna electrode to the central part of the antenna electrode, and the value obtained by dividing the relative permeability by the relative permittivity of said main body in the area around the central part is made larger than the value obtained by dividing the relative permeability by the relative permittivity of the main body in the peripheral area of the antenna electrode; the value obtained by dividing the relative permeability by the relative permittivity of the main body is made larger at the point of about $1/8$ in electric length from the peripheral part of the antenna electrode; bottom face of the main body is mounted on the top face of the high-frequency circuit board as mounting face, a concave part is formed on said bottom face of the main body, a no-electrode part of grounding electrode is provided inside this concave part, and a high-frequency circuit is mounted in the area covered by the concave part on said bottom face of the main body on the top face of said high-frequency circuit board; the bottom face of the main body is mounted on the top face of the high-frequency circuit board as mounting face, a convex part is formed on said bottom face of the main body, on the surface of this convex part is formed about the entire part of the grounding electrode, and a high-frequency circuit is mounted in the area other than the area where the convex part on

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said bottom face of the main body on the top face of said high-frequency circuit board is mounted on said high-frequency circuit board.

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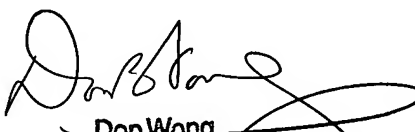
Inquiries

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information¹ regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner


Don Wong
Supervisory Patent Examiner
Technology Center 2800